Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An apparatus for freezing a biological sample in a flexible container, the apparatus comprising:

a cooling axis;

at least one set of two cooling plates with inner surfaces positioned along the cooling axis, each at least one set of two cooling plates comprising

a first plate dimension perpendicular to the cooling axis, and a second plate dimension parallel to the cooling axis;

a passage defined between the inner surfaces of the plates, the passage comprising an inner width that conforms to an outer width of the container;

and

a motion unit ~~adapted to move~~ that moves the container through the passage along the cooling axis, wherein ~~such that~~ the sample is cooled by conduction from direct contact between the container and the inner surfaces of the plates,

wherein the cooling plates ~~are configured~~ ~~to~~ maintain direct and tight sliding contact with the flexible container as [[it]] the flexible container passes through the passage.

2. (Previously Presented) The apparatus according to claim 1, wherein the plates are oriented vertically.

3. (Previously Presented) The apparatus according to claim 1, wherein the plates are oriented horizontally.

4. (Previously presented) The apparatus according to claim 1, wherein the inner surfaces of the plates are parallel to side walls of the container.

5. (Previously Presented) The apparatus according to claim 1, further comprising a retention device adapted to hold the container.

6. (Previously Presented) The apparatus according to claim 1, further comprising two or more sets of cooling plates arranged along the cooling axis adjacent to each other, wherein at least two adjacent sets are separated by a gap.

7. (Previously Presented) The apparatus according to claim 1, wherein the cooling plates comprise at least one channel adapted for flow of a cryogenic fluid therethough.

8. (Previously Presented) The apparatus according to claim 7, wherein the cryogenic fluid comprises liquid nitrogen.

9. (Previously Presented) The apparatus according to claim 1, a feedback control system adapted to control at least one freezing parameter.

10. (Previously Presented) The apparatus according to claim 9, further comprising a heating arrangement associated with the cooling plates.

11. (Previously Presented) The apparatus according to claim 10, wherein the heating arrangement comprises at least one electric resistance heater.

12. (Previously Presented) The apparatus according to claim 9, wherein the feedback control system comprises temperature sensors.

13. (Previously Presented) The apparatus according to claim 9, wherein the feedback control system comprises a processor.

14. (Previously Presented) The apparatus according to claim 13, wherein the processor is capable of controlling at least one of flow of cryogenic fluid, pressure of the cryogenic fluid, heating arrangement, and the motion unit.

15. (Previously Presented) The apparatus according to claim 1, further comprising a monitoring means.

16. (Previously Presented) The apparatus according to claim 15, wherein the monitoring means comprises a video camera.

17. (Previously Presented) The apparatus according to claim 15, wherein the monitoring means comprises a device capable of taking a temperature measurement of the biological sample during freezing.

18. (Previously Presented) The apparatus according to claim 17, wherein the device is an infrared thermograph.

19. (Previously Presented) The apparatus according to claim 1, further comprising a first chamber adapted to receive the container, a second chamber adapted to perform the freezing, and a third chamber adapted for removal of the container after freezing, the chambers constituting at least a portion of the passage.

20. (Previously Presented) The apparatus according to claim 19, adapted to initiate freezing within the first chamber.

21. (Previously Presented) The apparatus according to claim 1, adapted to initiate freezing external to the passage.

22. (Previously Presented) The apparatus according to claim 21, further adapted to initiate freezing in an area of the container and to introduce the container into the passage after initiation, wherein during the initiation the container is disposed such that the area is near the top thereof, and during introduction into the passage the area is near the front thereof in the direction of the movement.

23. (Previously Presented) The apparatus according to claim 19, wherein the third chamber is adapted to cool the container to a temperature which is below that achieved as a result of freezing.

24. (Currently amended) [[An]] The apparatus according to claim 1, wherein the cooling axis is disposed vertically.

25. (Currently amended) [[An]] The apparatus according to claim 24, further adapted to initiate freezing internal to the passage, and adapted for movement of the container from a lower portion of the passage to a higher portion of the passage.

26. (Currently amended) A method of cooling a biological sample, the method comprising:

(a) providing the apparatus according to claim 1;

(b) inserting [[a]] the container containing a biological sample into the apparatus;

(c) providing a predetermined temperature gradient along the cooling axis; and

(d) moving the container through the passage along the cooling axis.

27-43. (Cancelled)

44. (Previously Presented) The apparatus according to claim 1, wherein when the container is in the apparatus, the biological sample is disposed in the container such that the biological sample remains below the height of the passage.

45. (Previously Presented) The apparatus according to claim 1, wherein the biological sample comprises red blood cells.

46. (Previously Presented) The apparatus according to claim 1, wherein the container is a blood bag.

47. (Previously Presented) The apparatus according to claim 1, wherein the container has a length twenty times larger than the width of the container.

48. (Previously presented) The apparatus according to claim 1, wherein the passage has a constant cross section throughout the length of the passage.

49. (Previously presented) The apparatus according to claim 1, wherein the width of the passage is adjustable.

50. (Previously presented) The apparatus according to claim 1, wherein the cooling plates are configured to adjust to a varying width of the flexible container and maintain direct contact.

51. (Previously presented) The apparatus according to claim 50, wherein the cooling plates are configured to automatically adjust to a varying width of the flexible container and maintain direct contact.

52. (Previously presented) The apparatus according to claim 1, wherein at least one cooling plate is biased towards a direction of the passage

53. (Previously presented) The apparatus according to claim 1, wherein the inner surfaces of the cooling plates are smooth inner surfaces.

54. (Previously presented) The apparatus according to claim 1, wherein the inner surfaces of the cooling plates are parallel to side walls of the flexible container.

55. (Currently amended) The apparatus according to claim 1, including ~~at least one~~ the flexible container, the ~~cooling walls~~ inners surfaces and flexible container configured to provide and maintain direct and tight sliding contact therebetween along a length of the passage.

56. (Previously presented) The apparatus according to claim 55, wherein the flexible container is configured to allow an even distribution of the sample against both inner surfaces of the cooling plates.

57. (Previously presented) The apparatus according to claim 55, wherein the flexible container and inner surfaces of the cooling plates are smooth further allowing tight contact between the inner surfaces of the cooling plates and the flexible container when the container passes through the passage.